

Date: Thu, 28 Jan 93 13:59:24 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V93 #127  
To: Info-Hams

Info-Hams Digest                      Thu, 28 Jan 93                      Volume 93 : Issue    127

Today's Topics:

                    DSP and the Future (2 msgs)  
                            New Products  
                            Real NoCodes  
                    Transmitting 50-178 & 300-512?  
            Weekly Solar Terrestrial Forecast & Review - 29Jan-07Feb

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 28 Jan 1993 07:43:48 GMT  
From: mintaka.lcs.mit.edu!ai-lab!hal.gnu.ai.mit.edu!regnad@yale.arpa  
Subject: DSP and the Future  
To: info-hams@ucsd.edu

OK, a couple of things.... I know there is nothing "magic" about 455 KHz,  
but it *is* about the most commonly used IF for HF work. And I was  
definatly oversimplifying whan I mentioned "receivers with a decent front  
end". What I was trying to imply was that many of the "veteran" HF  
receivers (SP-600, R-390, HRO, etc.) used a 455 KHz IF and some of them  
already have IF out jacks, so hanging a DSP box capable of dealing with  
455 KHz would "revitalize" these radios like nobodies business. :)  
I also realize that, with present technology, dealing with 455 KHz  
directly is a bit of a stretch. But the technology *is* advancing, and  
who says the first step can't be a 455 to 50-75 (or therabouts) KHz mixer  
stage in the interim?

Paul Prescottt

N1AAC  
regnad@gnu.ai.mit.edu

-----  
Date: Wed, 27 Jan 1993 21:09:57 GMT  
From: elroy.jpl.nasa.gov!swrinde!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!  
hpnmdla!alanb@ames.arpa  
Subject: DSP and the Future  
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, jlbloom@arrl.org (Jon Bloom) writes:

[Description of receiver with mixer, IF (roofing) filter, and  
gain-controlled IF amplifier before a DSP signal processing system.]

>If you were to derive the  
>AGC after passing the signal through a narrow filter in the DSP  
>subsystem (or in an analog subsystem, for that matter), it wouldn't  
>control those signals that appear outside the narrow filter but inside  
>the roofing filter. Thus a strong signal of that sort wouldn't cause  
>the AGC to reduce the front-end gain, and the IF stages might overload.

As Jon hints, this is very similar to a double-conversion analog receiver:  
To avoid dynamic range problems, you have to be very careful about the  
gain distribution in front of the high-selectivity filter (at the second IF).  
With a DSP, you would have to design in enough "headroom" (dynamic range)  
so the DSP's A/D wouldn't overload even with signals considerably above  
the in-passband signal that controls the AGC level.

>On the other hand, if you allowed the AGC to respond to all of the  
>signals in the IF, but allowed the DSP to filter out a 500-Hz wide  
>segment of the IF, strong signals outside that segment would "pump"  
>the AGC, causing the desired signal to fluctuate in amplitude. Of  
>course, the DSP can compensate for this, but only up to a point.

Putting the DSP after the AGC detector is little better than using an  
audio filter. Assuming the analog IF filter has good unwanted-sideband  
rejection, you might as well do the DSP processing after the product  
detector (at audio).

>All of this is not to say that there aren't some real benefits to  
>having the DSP at IF instead of AF. One such benefit is that it  
>becomes much easier to demodulate many different types of signals--  
>"it's only software." But present DSP technology is not a panacea,  
>and sticking a DSP subsystem on the IF of a Knight Star Roamer(\*\*) is  
>not going to make it into an FT-1000.

Right.

>(\*\*) The other OFs already know this, but for you kids a Star Roamer  
>was a cheap kit shortwave receiver. It recived signals, and that's  
>about the best one could say for it.

Yeah, but can your DSP keep your hands warm on a cold winter night?

:=) AL N1AL

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Date: Thu, 28 Jan 1993 16:46:34 GMT

From: munnari.oz.au!spool.mu.edu!agate!stanford.edu!Csl!kawai@network.UCSD.EDU

Subject: New Products

To: info-hams@ucsd.edu

Brian McMinn (N5PSS) reports:

| In the Feb 93 QST, I saw the following new products that looked  
| interesting.

|

| Azden AX-21A, AZ-11, and AZ-61

| 6m and 10m HTs! (FM only) Azden is now in the HT business and

| their first three offerings are HT's for 2m, 6m and 10m.

Azden has been marketing these HTs in Japan for quite some time now. Azden has a reputation for heavy-duty equipment. Their HTs are neither lightweight nor small, but they do stand up to more abuse than their competition. They are also water-resistant (you cannot drop them in a swimming pool, but you can use them in rain or snow). If you remember the way Icom 32ATs were built, you can imagine how the Azdens look like.

When buying one, be sure to check for availability of PL tones (not just 88.5 Hz but all the other tones as well), and repeater offset capability. These features are not standard for the models marketed within Japan, because in Japan, there are no repeaters below 430 MHz.

-goh-

----- Speech Research Program, SRI, Menlo Park, CA 94025-3493 USA

--- Goh Kawai --- work:(415)859-2231 fax:(415)859-5984 home:(415)323-7214

----- internet: kawai@speech.sri.com radio: n6uok and 711fqe

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Date: Thu, 28 Jan 1993 04:03:23 GMT

From: haven.umd.edu!wam.umd.edu!adam@ames.arpa

Subject: Real NoCodes  
To: info-hams@ucsd.edu

In article <1993Jan25.052503.26072@nntpd2.cxo.dec.com> little@nuts2u.enet.dec.com (nuts2u::little) writes:

>  
>Actually I submit this as proof that the code requirement causes anal  
>retentive behavior in most people. Fortunately for those who've upgraded  
>and resisted the urge to be an asshole or joke in poor taste, there's not a  
>100% affliction rate.  
>  
>73,  
>Todd  
>N9MWB

Hey Todd,

No kidding. Jeez, good thing you told me SOME have resisted the urge. It almost deterred me from becoming a lowly extra.

--N3NKI

-----  
Date: Wed, 27 Jan 1993 20:45:05 GMT  
From: dog.ee.lbl.gov!overload.lbl.gov!agate!spool.mu.edu!sdd.hp.com!  
hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!alanb@network.UCSD.EDU  
Subject: Transmitting 50-178 & 300-512?  
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, jones@sj.ate.slb.com (Clark Jones) writes:

>Willie Smith (wpns@miki.pictel.com) wrote:  
>: Can you even build a PLL that works over more than an octave without  
>: resorting to esoteric tricks that are unlikely to be found in  
>: commercially available radios?  
>...  
>BTW, there are several commercially available receivers that use PLLs for  
>the LO and cover from ~0.1MHz to ~30MHz. That's >8 octaves...

But the PLL doesn't cover 8 octaves. Typically these radios use a first IF of, say, 45 MHz or so and use a PLL tuning between 45.1 and 75 MHz to cover the .1 to 30 MHz range.

There's no fundamental reason why a PLL can't go more than an octave, though. The main problem is making a VCO that tunes over such a wide range with good stability, low phase noise and a linear tuning curve.

AL N1AL

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Date: 28 Jan 93 19:01:56 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Weekly Solar Terrestrial Forecast & Review - 29Jan-07Feb  
To: info-hams@ucsd.edu

--- SOLAR TERRESTRIAL FORECAST AND REVIEW ---  
January 29 to February 07, 1993

Report Released by Solar Terrestrial Dispatch  
P.O. Box 357, Stirling, Alberta, Canada  
T0K 2E0  
Accessible BBS System: (403) 756-3008

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For information regarding our Dynamic Auroral Oval Simulator and its  
importance in aiding to determining propagation conditions,  
send a request for more information to:  
Oler@Rho.Uleth.CA, or COler@Solar.Stanford.Edu

Our Spring Special is now in effect for this software and  
will remain active until 31 May, 1993.

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SOLAR AND GEOPHYSICAL ACTIVITY FORECASTS AT A GLANCE

-----  
10-DAY SOLAR/RADIO/MAGNETIC/AURORAL ACTIVITY OUTLOOK

	Solar	HF Propagation	+/-	CON	SID PROB.	Es	AU.BKSR	DX	Mag	Aurora	
	Activity	LO MI HI PO SWF	%MUF	%	ENH LO MI HI		LO MI HI	%	K Ap	LO MI HI	
--	-----	-----			-----				----	-----	
29	LOW	VG G F F	10 00	75	05 NA NA NA		01 05 10 30	3	10	NV NV LO	
30	LOW	G G P P	15 -05	70	05 NA NA NA		02 10 25 30	3	15	NV NV MO	
31	LOW	G F P P	20 -10	65	05 NA NA NA		03 20 35 30	4	20	NV LO MO	
01	LOW	G G P P	25 -05	70	05 NA NA NA		03 15 30 30	3	15	NV NV MO	
02	LOW	VG G F F	25 00	65	05 NA NA NA		03 15 25 30	3	10	NV NV MO	
03	LOW	VG G F F	30 00	65	10 NA NA NA		02 10 20 30	2	08	NV NV LO	
04	LOW	VG G F F	30 00	65	10 NA NA NA		02 10 20 35	2	10	NV NV LO	
05	LOW	VG G F F	30 00	65	10 NA NA NA		02 10 20 35	2	10	NV NV LO	
06	LOW	VG G F F	30 00	65	10 NA NA NA		02 10 20 35	2	10	NV NV LO	
07	LOW	VG G F F	30 00	65	10 NA NA NA		02 10 20 35	2	08	NV NV LO	

## DEFINITIONS:

Date (day only)

Possible Magnitude of Solar Flaring (LOW=C-class, MOD=M-class, HIGH=M or X)

HF Propagation Conditions for LOW, MIDDLE, HIGH, and POLAR areas (see below)

HF Short Wave Fade Probability (in %)

HF Maximum Usable Frequency in +/- percent above seasonal normals.

HF Prediction CONFIDENCE Level (in %)

VHF Sudden Ionospheric ENHancement Probs (in %), weighted for low-mid lats

PROBability of "s"poradic E (Es) during the UT day for low, mid and high lats

VHF AUroral BACKScatter Probs (in %) for LOW, MIDDLE and HIGH Latitudes

VHF Overall Global DX Potential (in %) - weighted for Low and Middle latitudes

Geomagnetic Activity Kp Index (peak value - see below)

GeoMAGnetic Activity Ap Index (peak value - see below)

AURORAL Activity for LOW, MIDDLE and HIGH Latitudes (see below)

HF Prop. Quality rated as: EG=Extremely Good, VG=Very Good, G=Good, F=Fair, P=Poor, VP=Very Poor, EP=Extremely Poor.

Probability of Sporadic E (Es) for the various latitudes is given in percent.

Kp Planetary Index rated: 0=V.Quiet, 1=Quiet, 2=Unstld, 3=Active, 4=V.Active, 5=Minor Storm, 6=Major Storm, 7=Maj-Sev Storm, 8=Severe Storm, 9=V.Severe.

Ap Planetary Index rated: 0-7=Quiet, 8-16=Unstld, 17-29=Active,

30-49=Minor Storm, 50-99=Major Storm, Severe Storm >=100.

Auroral Activity rated: NV=Not Visible, LO=Low, MO=Moderate, HI=High,

VH=Very High.

## PEAK PLANETARY 10-DAY GEOMAGNETIC ACTIVITY OUTLOOK (29 JAN - 07 FEB)

EXTREMELY SEVERE												HIGH
VERY SEVERE STORM												HIGH
SEVERE STORM												MODERATE
MAJOR STORM												LOW - MOD.
MINOR STORM												LOW
VERY ACTIVE			*									NONE
ACTIVE	*	**	***	***	*							NONE
UNSETTLED	***	***	***	***	***	**	*	**	**	*		NONE
QUIET	***	***	***	***	***	***	***	***	***	***		NONE
VERY QUIET	***	***	***	***	***	***	***	***	***	***		NONE
-----												
Geomagnetic Field	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun		Anomaly
Conditions	Given in 8-hour UT intervals											Intensity

CONFIDENCE LEVEL: 70%

## NOTES:

Predicted geomagnetic activity is based heavily on recurrent

phenomena. Transient energetic solar events cannot be predicted reliably over periods in excess of several days. Hence, there may be some deviations from the predictions due to the unpredictable transient solar component.

## 60-DAY GRAPHICAL ANALYSIS OF GEOMAGNETIC ACTIVITY

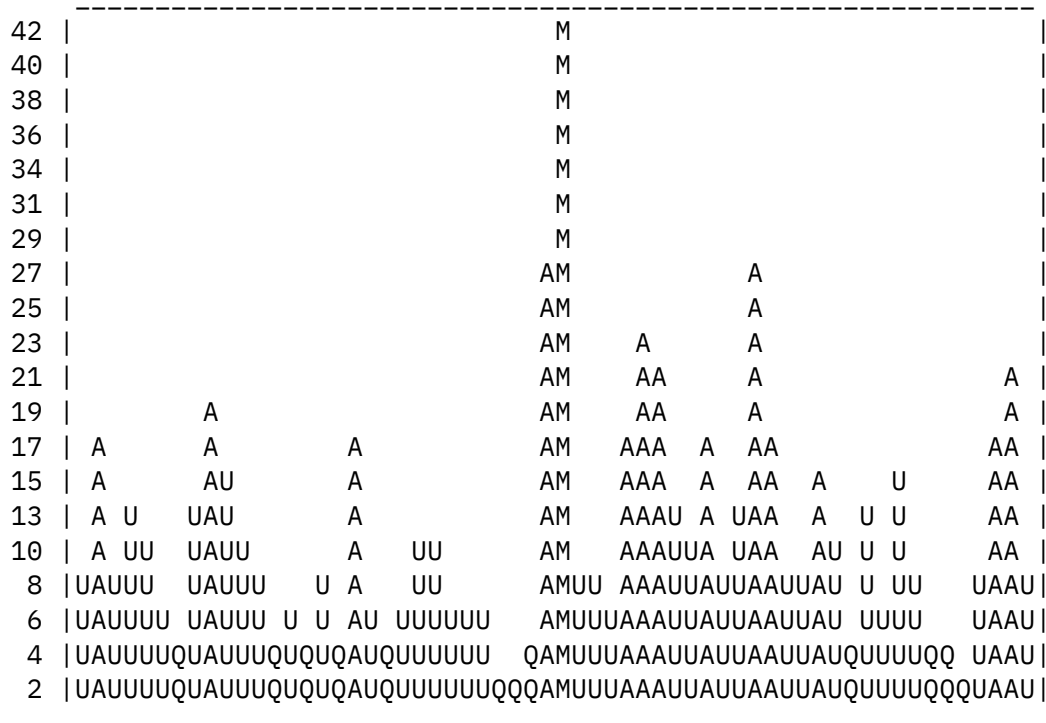


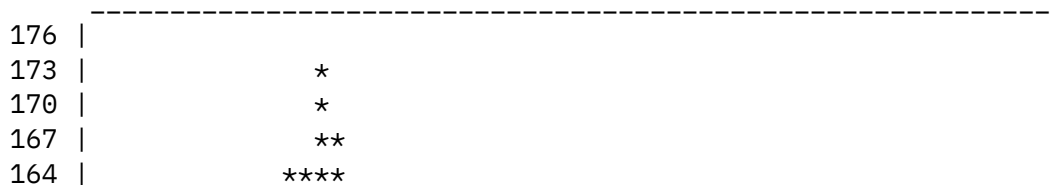
Chart Start Date: Day #335

NOTES:

This graph is determined by plotting the greater of either the planetary A-index or the Boulder A-index. Graph lines are labelled according to the severity of the activity which occurred on each day. The left-hand column represents the associated A-Index for that day.

Q = Quiet, U = Unsettled, A = Active, M = Minor Storm, J = Major Storm, and S = Severe Storm.

## CUMULATIVE GRAPHICAL CHART OF THE 10.7 CM SOLAR RADIO FLUX



```

161 |          ****
158 |          ****
155 |          *****
152 |          *****
149 |          ****
146 |          ****
143 |          **** *
140 | **          **** **
137 | **          **** **
134 | **          **** **
131 | ***          **** *
128 | ****          **** *
125 | ****          ****
122 | ****          ****
119 | ****          ****
116 | ****          ****
113 | ****          ****
110 | ****          **** *
107 | ****          **** **
104 | ****          ****
101 | ****          ****

```

-----

Chart Start: Day #334

# GRAPHICAL ANALYSIS OF 90-DAY AVERAGE SOLAR FLUX

```

143 |          ****
142 |          ****
141 |          ****
140 |          *          ****
139 |          ****
138 |          ****
137 |          ****
136 |          ****
135 |          ****
134 |          ****
133 | ****          ****
132 | ****          ****
131 | ****          ****

```

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Chart Start: Day #334

## NOTES:

The 10.7 cm solar radio flux is plotted from data reported by the Penticton Radio Observatory (formerly the ARO from

Ottawa). High solar flux levels denote higher levels of activity and a greater number of sunspot groups on the Sun. The 90-day mean solar flux graph is charted from the 90-day mean of the 10.7 cm solar radio flux.

## CUMULATIVE GRAPHICAL CHART OF SUNSPOT NUMBERS

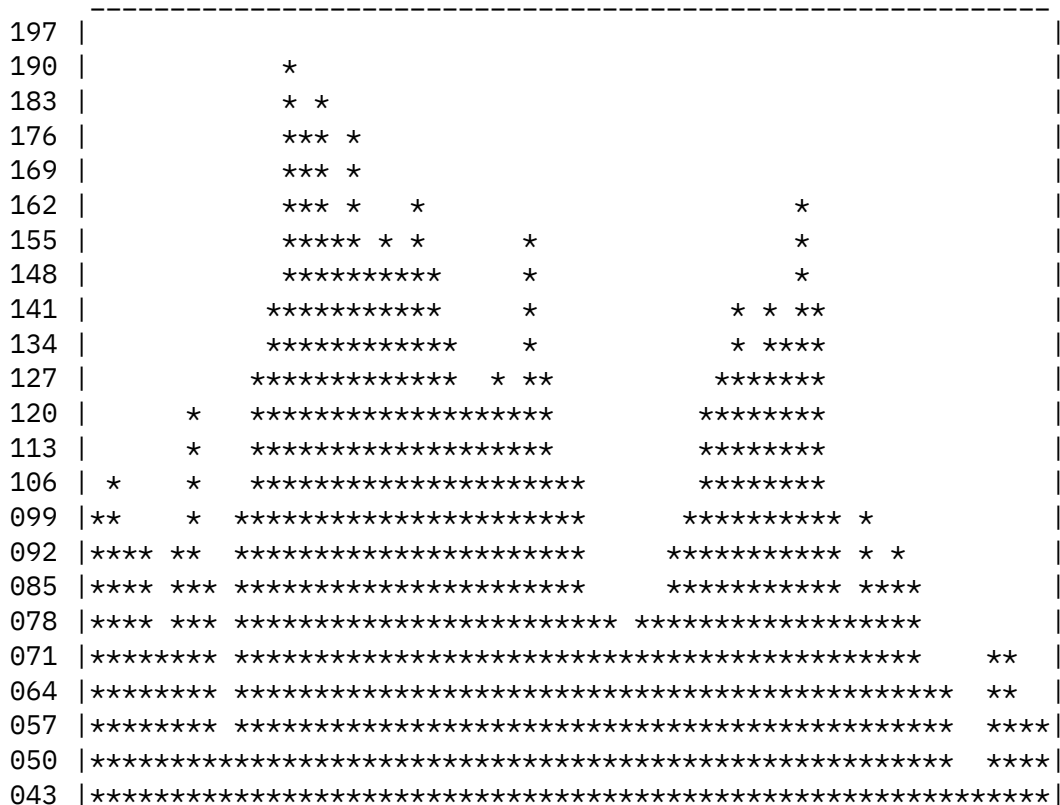


Chart Start: Day #334

NOTES:

The graphical chart of sunspot numbers is created from the daily sunspot number counts as reported by the SESC.

## HF RADIO SIGNAL PROPAGATION PREDICTIONS (29 JAN - 07 FEB)

## High Latitude Paths

[illegible]

LEVEL	FAIR	***	**	*	*	**	***	***	***	***	***
-----	POOR		*	*	*	*					
70%	VERY POOR										
	EXTREMELY POOR										
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PROPAGATION	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	QUALITY	Given in 8 Local-Hour Intervals									
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

#### Middle Latitude Paths

	EXTREMELY GOOD										
	VERY GOOD										
CONFIDENCE	GOOD	***	***	**	**	***	***	***	***	***	***
LEVEL	FAIR			*	*						
-----	POOR										
70%	VERY POOR										
	EXTREMELY POOR										
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PROPAGATION	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	QUALITY	Given in 8 Local-Hour Intervals									
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

#### Low Latitude Paths

	EXTREMELY GOOD										
	VERY GOOD	*	*			*	*	*	*	*	*
CONFIDENCE	GOOD	* *	* *	***	***	* *	* *	* *	* *	* *	* *
LEVEL	FAIR										
-----	POOR										
70%	VERY POOR										
	EXTREMELY POOR										
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PROPAGATION	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	QUALITY	Given in 8 Local-Hour Intervals									
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

#### NOTES:

NORTHERN HEMISPHERE			SOUTHERN HEMISPHERE		
High latitudes	>= 55	deg. N.	High latitudes	>= 55	deg. S.
Middle latitudes	>= 40 < 55	deg. N.	Middle latitudes	>= 30 < 55	deg. S.
Low latitudes	< 40	deg. N.	Low latitudes	< 30	deg. S.

POTENTIAL VHF DX PROPAGATION PREDICTIONS (29 JAN - 07 FEB)

INCLUDES SID AND AURORAL BACKSCATTER ENHANCEMENT PREDICTIONS

#### HIGH LATITUDES

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[illegible]

## AURORAL ACTIVITY PREDICTIONS (29 JAN - 07 FEB)

CONFIDENCE LEVEL	EXTREMELY HIGH											
	VERY HIGH											
	HIGH											
-----	MODERATE	*	*	*	*							
70%	LOW	***	***	***	***	***	***	***	***	***	*	*
	NOT VISIBLE	***	***	***	***	***	***	***	***	***	***	***
	-----	---	---	---	---	---	---	---	---	---	---	---
	AURORAL	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
	INTENSITY	Eve.Twilight/Midnight/Morn.Twilight										

[illegible]

-----	MODERATE												
70%	LOW		*	*									
	NOT VISIBLE	***	***	***	***	***	***	***	***	***	***	***	***
-----		----	----	----	----	----	----	----	----	----	----	----	----
	AURORAL	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	INTENSITY	Eve.Twilight/Midnight/Morn.Twilight											

NOTE:

For more information regarding these charts, send a request for the document, "Understanding Solar Terrestrial Reports" to: "Oler@Rho.Uleth.Ca" or to: "COler@Solar.Stanford.Edu". This document, as well as others and related data/forecasts exist on the STD BBS at: (403) 756-3008.

Date: Thu, 28 Jan 1993 04:00:03 GMT  
From: haven.umd.edu!wam.umd.edu!adam@ames.arpa  
To: info-hams@ucsd.edu

In article <C1E5M4.HvK@anomaly.sbs.com> kd1hz@anomaly.sbs.com (Michael P. Deignan) writes:

>which can't even get its domain name straight, but here goes...

>

>clemon@lemsys.UUCP (Craig Lemon VE3XCL) writes:

>

^^^^^

>There is no such thing as a ".UUCP" domain, BTW.

Hey moron, try clemon@lemsys.uu.net instead.

Thought you knew everything.

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End of Info-Hams Digest V93 #127

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